South Star Cogeneration LLC is seeking approval from the CEC to construct and operate the South Star Cogeneration Project (South Star) in western Kern County approximately 35 miles southwest of Bakersfield, California. The South Star Project will consist of two substantially identical cogeneration plants, South Star I (Section 17, T32S, R23E) and South Star II (Section 7, T32S, R23E), that are located approximately 1.5 miles apart on contiguous Texaco California Inc. (TCI) property in the South Midway-Sunset Oilfield. The Application for Certification (AFC) presents an evaluation of the entire South Star Project in a manner to clearly indicate the environmental affects associated with each site and its related linear facilities.

South Star I includes the following project components shown on Figure 2-1:

- South Star I site:
- Replacement of poles and conductor for approximately 4.7 miles of existing 12.47 kV transmission line;
- 0.6 mile 115 kV transmission line extension to South Star I site;
- Alternative stand-alone 5.3 mile 115 kV transmission line;
- 3.6 miles of natural gas line (Kern-Mojave to Station 109 and natural gas line placed within TCI South Midway Utility Corridor Segment A);
- Approximately 2.4 mile Alternative Route 1 natural gas line; and
- Improved access road (Midoil Road to South Star I site).

South Star II includes the following project components as shown on Figure 2-1:

- South Star II site:
- 3.8 mile addition of second 115 kV circuit on proposed South Star I transmission line;
- 1.4 miles of natural gas line (placed within TCI South Midway Utility Corridor Segment B);
- Alternative aboveground Route 2 natural gas line; and
- Improved access road (Midoil Road to South Star II site).

8.9.1 Affected Environment

Most of the South Star I and II facilities are located in an area of low hills at the foot of the Temblor range, with downward gradient slope to the northeast. The South Star I site is located between 1,500 and 1,600 feet above mean sea level (msl). The South Star II site is located between 1,650 and 1,750 feet above msl. Part of the new natural gas line runs in a flat area of the alluvial fan within the valley (from an elevation of 1,200 feet above msl at the TCI Station 109 gas dehydration plant to an elevation of 925 feet above msl at the intersection with the Kern-Mojave pipeline). Local drainage is directed towards Broad Creek, except for the northern part of the power line, for which drainage flows towards Buena Vista Creek. All headwaters in the area originate in the Temblor Range.

The area is being dissected by wind and stream erosion, although rainfall is limited and streams are intermittent. There is no agricultural development in the immediate vicinity of either South Star I or II. Rainfall is less than 10 inches per year; groundwater is more than 300 feet below the ground surface (see Section 8.14, Water Resources). Soils affected by South Star I and II along the proposed and alternate transmission line, the TCI South Midway Utility Corridor, and portions of the proposed and alternate natural gas line are not prime farmland, and have a severe erosion hazard. Some of the soil types along the proposed and alternate fuel gas line would be amenable to agriculture with irrigation. Soils along most portions of the linears proposed were previously disturbed by oil and gas production activity and pipeline and utility placement. No agriculture is present within one mile radius of the South Star I and II sites.

The soil resources that may be affected by the South Star Project are described in the following sections.

8.9.2 Environmental Effects

There will be environmental effects on soils in the construction areas of the South Star I and II sites, at the locations of poles for the proposed electrical transmission line, and along the underground natural gas line. There has been previous disturbance of soils at both sites caused by previous oil and gas exploration and production activity. Soil resource information was obtained from unpublished maps and descriptions for southwest Kern

County, and for the Carrizo Plain Area of San Luis Obispo County. The information was supplied by the Bakersfield and Templeton office of the National Resource Conservation Service (NRCS, 2001, and NRCS, 2001b). Soil types in the project area are listed by location in Table 8.9-1 and presented in Figure 8.9-1. Descriptions and properties of the soil types are provided in Table 8.9-2.

8.9.2.1 Cogeneration Plant Sites

South Star I. The proposed South Star I site would consist of an area encompassing approximately 6.3 acres. An electrical switchyard, access spur road, parking areas, and laydown areas also are included within the proposed South Star I site. The proposed site is located on a grassy hilltop near the western edge of this portion of the oil field. There are a number of existing roads and road cuts on the site, but it consists primarily of steep, open grassland. Substantial grading and filling would be required to create a level platform for use of this site. The proposed Plant Site is located in the southeast 1/4 of Section 17 and lies entirely within the *Pyxo-Cochora-Badlands* soil association (NRCS, 2001).

South Star II. The size and use of the South Star II site would be similar to the South Star I Cogeneration Plant Site described above. The proposed site is located on a hillside at the head of a small drainage, with extensive oil field development to the south and east and relatively undeveloped open grazing lands a short distance to the north. Some grading and filling would be required to create a level platform for use of this site. The Plant Site is located near the center of Section 7. The site is partially underlain by the *Pyxo-Cochora-Badlands* soil association, and the *Pyxo-Cochora* soil association (NRCS).

The Pyxo-Cochora and Pyxo-Cochora-Badlands association is constituted of gravelly loam with a total thickness generally not exceeding 38 inches (NRCS, 2001). The pyxo soil type is mostly encountered in north- to east-facing backslopes with 15 to 30 percent slopes. The Cochora soil type is encountered in south- to west-facing backslopes with 15 to 30 percent slopes. Both soils have low to very low available water capacity and severe erosion hazard. The badlands type is encountered in scarpes on toe slopes with 50 to 75 percent slopes and consists of very steep barren land dissected by many intermittent drainage channels. Runoff is very rapid and it is subject to very severe erosion. None of these two

associations is interpreted as prime farmland by the National Resources Conservation Service (NRCS, 2001).

Surface soils will be excavated to flatten the topography of the site. Considering the shallow depth of soils, it is anticipated that surface soil at the construction area will be removed and replaced by fill. During construction activities, changes in the in-place soil characteristics may also occur. Changes in the soil will include alterations to the physical and biological characteristics of the native soil. The potential for water erosion of the soil left in place is high, and the potential for wind erosion of the soil left in place is moderate. The NRCS description of the soil states that excavation of the soil can expose material highly susceptible to wind erosion. Therefore, revegetation or synthetic mat covering where needed following disturbance is recommended. No land within a mile of both South Star I and II sites and laydown area is being used for agriculture (Kern County Agricultural Commissioner's Office, 2001). Both South Star I and II sites will be located in a limited agricultural (A-1) zoning district of the Kern County Zoning Map (2001), which are areas suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses (see Section 8.4, Land Use).

If mitigative steps are taken to stabilize soil susceptible to erosion and drainages are constructed in conformance with California and Kern County requirements (see Section 8.9.4), the direct and cumulative impacts on soil at the South Star I and II plant sites will be minimal. The accelerated soil loss potential from wind or water erosion was not calculated because compacting and construction activity will reduce the potential for water and wind erosion within a month of excavation. There is no agriculture present within the project area and soils are not considered prime farmland. Therefore, the direct and cumulative impacts of the project on agriculture is also considered not significant.

8.9.2.2 Linear Facilities

Proposed Natural Gas Line Route and Alternate Route 1 (Natural Gas). The proposed and alternate route for the natural gas pipeline would extend from a tie-in at the existing Kern-Mojave Pipeline at Midway Road, about 2.5 miles east of the town of Fellows, to TCI's Station 109 gas dehydration plant, in the southwest quarter of Section 9, T32S,

R23E (Figure 8.9-1). Both lines will have an approximate length of 2.4 miles. Vegetation in this area includes saltbrush and other arid chaparral species as well as low sparse grasses. The area shows extensive evidence of early oil exploration and production. The lines will consist of a 16-inch-diameter pipe, buried 4 to 6 feet deep and approximately 3-foot-wide trench. Soil disturbance will cover an approximate area of 0.7 acre. The proposed and alternate gas line route cross the Guijarral gravelly sandy loam for approximately 80% of their route from the Kern-Mojave Pipeline to approximately 0.5 miles from TCI Station 109 gas dehydration plant. The rest of the routes cross the Welport-Elkhills association.

No land within a quarter mile along the proposed and alternate gas routes is being used for agriculture (Kern County Agricultural Commissioner's Office, 2001). The zoning district crossed by the line are defined as limited agricultural (A-1) by the Kern County Zoning Map (2001). Limited agriculture refers to areas suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses (also see Section 8.4, Land Use).

The Guijarral gravelly sandy loam is a very deep and well drained soil derived from alluvium deposits and developed on alluvial fan terraces. This soil has a hazard of water and wind erosion slight to moderate. The NRCS states that the soil type could be the cover of prime farmland if it were irrigated (NRCS, 1998). The Welport-Elkhills association is a shallow and well drained soil derived from uplifted alluvium, generally developed on hills. This soil association has a severe potential for water erosion and moderate potential for wind erosion. This association is not considered prime farmland (NCRS, 2001).

For both associations, the NRCS states that excavations for roads or building site pads can expose material highly susceptible to wind erosion and recommends that disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed in order to reduce the risk of wind erosion. The risk of corrosion of steel or concrete can be offset with resistant coatings or cathodic protection. For the Welport-Elkhills association, the NRCS recommends building water diversion ditches adjacent to roads to direct runoff away from the exposed soil.

With the incorporation of the mitigation measures proposed in Section 8.9.3 to stabilize soils susceptible to erosion and to ensure drainages are constructed in conformance with California and Kern County requirements (see Section 8.9.4), the direct impacts and cumulative impacts on soil at the proposed and alternate gas pipeline route are expected to be less than significant. The accelerated soil loss potential from wind or water erosion was not calculated because compacting and construction activity will reduce the potential for water and wind erosion within a month of excavation. Direct and cumulative impacts on agriculture development in this area is not anticipated because the soil in the proposed and alternate natural gas pipeline routes was disturbed in the past during petroleum production activity.

Alternate Route 2 Natural Gas. This alternate Route 2 for natural gas extends from a tie-in to existing lines immediately west of the town of Fellows, then follows an existing road southeast to the proposed South Star II site. The line is planned to be an above ground pipeline to be located on a TCI South Midway Utility Corridor pipe rack with a total length of approximately 1.5 miles. Some grading and filling would be required at a few locations to accommodate the new line. Vegetation is a mix of non-native grasses and various arid chaparral species on rolling hills, dissected by deep and mostly very narrow drainages, as well as a few wider valleys. The proposed alternate Route 2 crosses the *Pyxo*-Cochora soil association on 60% of its route for approximately 0.9 miles. Then, the line crosses the *Pyxo-Cochora-Badlands* soil association along 0.3 miles (25% of the total length). The last 0.2 miles of the line are underlined by the Welport-Elkhills association. These three associations have a high hazard for water erosion and moderate hazard of wind erosion for undisturbed soils. The NRCS states that excavations for roads or building site pads can expose material highly susceptible to wind erosion and recommends that disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed in order to reduce this risk. None of this soil association is considered prime farmland.

No land within a quarter mile along the alternate gas route area is being used for agriculture (Kern County Agricultural Commissioner's Office, 2001). The zoning district crossed by the line is defined as limited agricultural (A-1) by the Kern County Zoning Map (2001). Limited agriculture refers to areas suitable for a combination of estate-type

residential development, agricultural uses, and other compatible uses (see Section 8.4, Land Use).

The alternate Route 2 for natural gas will be an above ground pipe placed on a TCI pipe rack, which will involve minimal soil disturbance during construction and operation. Therefore, it is anticipated that with incorporation of the mitigation measures proposed in 8.9.3 to stabilize soils susceptible to erosion during construction (Section 8.9-4), the direct and cumulative impacts on soil for the alternate Route 2 for natural gas pipeline will be less than significant. Direct and cumulative impacts on agriculture development in this area are not anticipated because soils in the proposed and alternate natural gas pipeline route are not considered prime farmland.

Proposed Natural Gas Line

TCI South Midway Utility Corridor Segments. Approximately 1.25 miles of the natural gas pipeline will be aboveground and placed on the TCI South Midway Utility Corridor pipe rack to supply natural gas to South Star I. This connection is designated Segment A on Figure 2-1. The pipeline will be extended approximately 1.4 miles within the TCI utility corridor to supply gas to South Star II. This extension is designated Segment B on Figure 2-1.

Both segments run through an operating TCI oil field, with many paved and unpaved roads, road cuts, cut and graded well pads with operating oil wells, and existing surface and subsurface linear facilities, including steam lines, water lines and natural gas lines. Much of the route roughly parallels an existing aboveground steam line. Much of the natural vegetation has been removed in the course of the extensive active development. However, clusters of chaparral species (such as salt brush), as well as low non-native grasses, are present in some areas.

Segment A: Station 109 Gas Dehydration Plant West to South Star I. This route segment extends west from a tie in at TCI's Station 109 Gas Dehydration Plant to South Star I. This segment crosses *Pyxo-Cochora-Badlands* soil association along 0.4 miles from the Station 109 and the *Welport-Elkhills* association.

Segment B: South Star I to South Star II. This route segment runs approximately SE-NW between South Star I and TCI's existing South Midway Steam Plant, located in the northwest corner of Section 17. The segment continues in the same direction to the South Star II site in Section 7. This segment is entirely underlain by the *Pyxo-Cochora-Badlands* soil association.

No land within a quarter mile along Segment A and B is being used for agriculture (Kern County Agricultural Commissioner's Office, 2001). The zoning district crossed by the line are defined as limited agricultural (A-1) by the Kern County Zoning Map (2001), referring to areas suitable for a combination of estate-type residential development, agricultural uses, and other compatible uses (see Section 8.4, Land Use).

Since construction of the aboveground pipeline in each segment will not involve trenching, impacts to soil resources are expected to be minimal. Additionally, with incorporation of the mitigation measures in Section 8.9.3 to stabilize soils susceptible to erosion and to ensure appropriate drainages during construction, the direct and cumulative impacts are expected to be less than significant on soils along the segments. Direct and cumulative impacts on agriculture development in this area are not anticipated because the area of the proposed segments is previously disturbed and not considered prime farmland.

Proposed New or Rebuilt 115 kV Transmission Line. South Star I will interconnect to Morgan Substation by replacing poles supporting an existing 4.7 mile 12.47 kV transmission line. This transmission line will be removed and replaced with a conductor suitable for 115 kV service and extended approximately 0.6 miles to interconnect South Star I. Existing poles will be used where feasible. Alternatively, a new transmission line will be constructed parallel to the existing 12.47 kV transmission line.

South Star II proposes to add a second 115 kV circuit to the South Star I transmission line. This new circuit will be approximately 3.8 miles to interconnect South Star II to the Morgan Substation.

The route description and type of soils encountered along the existing and proposed transmission line route are detailed below.

The existing line originates at the Morgan Substation, on Mocal Road about 2.5 miles northwest of the town of Fellows, and runs due south into the hills. Along this part, the line crosses the Pyxo-Cochora association, and the Welport-Elkhills association (NRCS, 2001, and NRCS 2001b). Then, the line makes a turn to the southeast near the San Luis Obispo County line and continues southeast through the hills to a point about ³/₄ mile west of the South Star I site. Along this segment, the line crosses entirely the Pyxo-Cochora-Badlands and Pyxo-Cochora association (NRCS, 2001, and NRCS 2001b). From this point, the proposed route makes a sharp turn to the northeast.

The route then follows a downward-sloping ridge line immediately north of an existing oil field road, to encounter Segment B of the TCI South Midway Utility Corridor. Then the route turns southeast and parallels the east side of Segment B to the South Star I Site. The soils crossed from the sharp northeast turn to South Star I are part of the Pyxo-Cochora-Badlands association (NRCS, 2001). This segment is the segment proposed as new 115 kV Transmission line.

Except in the portion of the route that diverges from the existing line, the proposed transmission line route runs primarily through inactive older oil field development or other relatively undeveloped areas, east of and at slightly higher elevations than the currently active oil fields. This route is more vegetated than most of the other linear facility routes, with a mixture of sparse to dense cover of non-native grasses, and areas of sparse to dense arid chaparral. The terrain along the alignment consists of steep rolling hills, most of which drop very steeply to narrow, deeply cut drainages, which are sandy and often highly eroded as the result of seasonal flooding. A few wider drainage valleys are interspersed among these steeper areas. No surface water was observed in drainages anywhere along the route. In some stretches, the route runs along a ridgeline and is relatively level.

Approximately 3,750 ft² of soil will be temporarily disturbed at the location of each transmission line support structure during construction. Approximately 10 square feet of soil will be disturbed, covered, and permanently removed from agricultural use at the location of each transmission line support structure. For the new proposed 0.6 mile extension of the existing line to South Star I, approximately 16 wood poles with single 36-inch

diameter support footings are planned (one every 200 feet). Construction of all of the structures would temporarily disturb approximately 1.4 acres and cover approximately 0.01 acres of soil.

The existing 4.7-mile 12.47 kV transmission line has 140 wood poles. Although South Star would use the existing poles where feasible, soil disturbance has been calculated as a "worst-case" scenario assuming replacement of all 140 poles. Replacement construction would temporarily disturb approximately 3,750 square feet of soil at each pole location, resulting in a temporary disturbance of approximately 12.1 acres of soil. Since the existing pole locations will be reused, no permanent covering or removal from agricultural use of soil will occur. The alternate new 115 kV Transmission Line would have approximately 156 poles (including the line for South Star I), resulting in approximately 13.5 acres of soil disturbed during construction, and a total of 0.03 acres of soil covered and removed from agricultural use.

In order to either replace existing poles or install new transmission poles, approximately 1 mile of new road and regrading of approximately 2 miles of existing road will need to be constructed. Regrading work will result in a temporary soil disturbance of 1.9 acres for existing roads and approximately 1.2 acres for new roads.

Soils along the proposed, existing, and alternate transmission line route consist of sandy to gravelly loam, ranging from shallow to moderately deep types, all are well drained, but with low to very low available water capacity. These soils are in the "high" corrosive class for steel and slight to moderate class for concrete. The potential for water erosion is severe for all undisturbed soil types, and the potential for wind erosion is moderate. The NRCS survey for each soil states that excavation of the soil can expose material highly susceptible to water and wind erosion. The clearing of vegetation and soil compaction by construction vehicles will result in increased susceptibility to these hazards. Therefore, revegetation or covering with synthetic matting as needed following disturbance is recommended to avoid increase of water and wind erosion.

No land within a quarter mile along the new or rebuilt transmission line corridor is being used for agriculture (Kern County Agricultural Commissioner's Office, 2001). The

zoning districts crossed by the line are defined as limited agricultural (A-1) in Section 6 and extended agricultural in Section 35 of the Kern County Zoning Map (2001). The limited agricultural designation refers to areas suitable for agricultural uses. This designation is designed to prevent the encroachment of incompatible uses onto agricultural lands and the premature conversion of such lands to non-agricultural uses. Uses in the "A" District are limited primarily to agriculture and other activities compatible with agriculture. Portions of the existing line crossing the San Luis Obispo County (Section 1 and 2 on Figure 8.9-1) are located in areas designated for rural land use, section 1, having a flood hazard zoning overlay (see Section 8.4, Land Use).

Proposed, existing, and alternate transmission line routes are located in areas where the potential for water erosion is high. Therefore, mitigative steps must be taken to stabilize the soil during construction and operation to minimize this hazard. With the implementation of the mitigation measures in 8.9.4 the transmission line routes will be constructed in conformance with California and Kern County authorities, and the direct and cumulative impacts on soil from transmission line construction will be less than significant. Direct and cumulative impacts on agriculture development in this area is not anticipated because the soil in the proposed and alternate natural gas pipeline route is not considered prime farmland and has been previously disturbed.

8.9.2.3 Summary of Effects on Soil

Approximately 6.3 acres will be permanently disturbed and taken out of production for agricultural use during construction and operation of each of the two cogeneration plants. Approximately 16 acres of soil cover will be removed and compacted for improved support of the cogeneration equipment at each site. The existing 12.47 kV transmission line will be rebuilt and extended to interconnect South Star I, disturbing approximately 25.8 acres of soil during construction of support structures along the transmission line. Of the 25.8 acres, approximately 0.3 acres will be covered with poles and taken out of production for agricultural use.

Approximately 0.7 acres of soil are expected to be disturbed at the proposed Natural Gas Line route and its alternate. Since the extension of the natural gas pipeline from

Station 109 to South Star I and South Star II (Segments A and B) will be constructed within the TCI South Midway Utility Corridor and placed aboveground on a pipe rack, minimum soil disturbance is expected to occur. The alternate line Route 2 for natural gas will be similarly constructed and therefore minimal soil disturbance is expected. No agricultural land will be taken out of production for any facility of either South Star I or II facility. Most of the soils encountered are not prime farmland and all soils in the project area have been previously disturbed. The major potential impact of the South Star Project on soil resources is increased erosion by water or wind because of the natural texture of soils.

8.9.3 Mitigation

8.9.3.1 Mitigation Measures

The following mitigation measures will be taken to minimize the impacts of South Star I and II on soil resources. Because the soils are not currently used for agriculture and are not prime farmland in their current condition, the greatest potential impact would be in accelerated water or wind erosion.

After grading and compacting of the soil excavated from the sites, the potential for wind and water erosion, which was increased by excavation, will be reduced. The sites will be graded and will have drainage controls. During construction, portions of the South Star I and II sites will be covered with concrete, asphalt, and/or gravel. A detailed Erosion Control Plan will be prepared prior to construction. The following measures will be taken to reduce impacts to minimal levels.

- Soil 1. Prepare a detailed Erosion Control Plan prior to construction and implement the plan during and after construction. Surface soil protection may include the use of mulch, synthetic netting material, and riprap; the installation of a sediment detention basin on the downgrade edge of the South Star I and II Project sites; and the compacting of native soil.
- **Soil 2.** Conduct all grading operations in compliance with the Kern County Grading Ordinance.
- **Soil 3**. Conduct all construction activities in accordance with California's General Industrial Storm Water Permit for Construction Sites, including the erosion control measures under **Soil 1** and Best

Management Practices (BMPs) to reduce erosion and the transport of increased suspended sediment from construction areas.

Soil – 4. Stabilize soil in areas that will be disturbed by construction but not compacted or covered by pavement or concrete structures. This stabilization will apply in particular to the areas disturbed by the construction of the transmission line supports. To stabilize the areas, 4-inches of topsoil should be selectively removed, stored, and replaced. In areas of excavation, soil should be graded and compacted to ensure that removed soil is not left in irregular piles that are more susceptible to water and wind erosion. Seeding will be performed in the areas where natural vegetation has been distressed or removed by construction activity.

8.9.3.2 Proposed Conditions of Certification

In order to ensure compliance with applicable LORS and/or to reduce potentially significant impacts to less than significant levels, proposed conditions of certification are contained in Appendix K.

8.9.4 Applicable Laws, Ordinances, Regulations, and Standards

The laws, ordinances, regulations, and standards (LORS) that apply to agricultural and soil resource effects for the South Star Project are presented in Table 8.9-3. The LORS for federal, state, and local authorities are presented; there are no industry LORS that apply.

Federal Water Pollution Control Act of 1972 and Clean Water Act of 1977 (including 1987 amendments). These laws establish requirements for discharges from any activity that would affect the beneficial uses of receiving waters. These requirements address the quality of surface water leaving the South Star I and II Project sites during and after construction (see Section 8.14, Water Resources). However, these regulations are also included here because of the potential for increased sediment in surface waters resulting from increased erosion. The Central Valley Regional Water Quality Control Board is the administering agency for this authority.

South Star I and II will not exceed discharge limits because of mitigative steps taken during grading and construction. Mitigative measures SOIL-3 and SOIL-4 taken during grading and construction will protect the receiving waters.

U.S. Department of Agriculture, Soil Conservation Service, National Engineering Handbook, Sections 2 and 3 (1983). This guidance provides standards for soil conservation during planning, design, and construction activities. The Natural Resources Conservation Service's local office in Bakersfield, California, provided additional guidance for limiting excess soil erosion for soils specific to the South Star Project area.

South Star I and II will conform with applicable standards in the National Engineering Handbook to ensure that the project will not cause soil loss though accelerated erosion and mitigative steps will be taken during grading and construction. Mitigative measures SOIL-1 through SOIL-4 outline steps to be taken during grading and construction to limit soil erosion caused by the soil disturbance.

California Public Resources Code Section 25523(a); California Code of Regulations (CCR) Sections 1752, 1752.5, 2300-2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (i). These regulations stipulate the environmental review and siting procedures to be followed in the development of power generation projects larger than 50 MW. The California Energy Commission (CEC) is the administering agency for this authority.

South Star I and II will be in compliance with this authority by submitting all information on environmental impacts on soil and agriculture to the CEC and implementing all mitigative measures identified in the final certification.

California Environmental Quality Act, California Public Resources Code, Section 21000 *et seq.*; Guidelines for Implementation of the California Environmental Quality Act (CEQA) of 1970, 14 CCR, Section 15000-15387, Appendix G. The CEQA authority must be considered for agriculture and soils under the South Star Project because of the specification that: "A project will normally have a significant effect on the environment if it will ...(q) Cause substantial flooding, erosion, or siltation; ...(y) Convert prime agricultural

land to non-agricultural use or impair the agricultural productivity of prime agricultural lands.

SOIL-1 through SOIL-4 mitigation measures outline steps to be implemented during grading and construction to ensure that South Star I and II will not cause substantial flooding, erosion, or siltation. The project also will not convert prime agricultural land to non-agricultural use or impair agricultural productivity. The area that will be covered by either South Star I or II sites has not been, nor is it expected to be, in agricultural production in the foreseeable future. Surface water flows in the area are sparse, intermittent, and not adequate for irrigation. Groundwater, approximately 300 feet below ground surface, reportedly is also not of sufficient quality for agricultural use. As a result, a viable source of irrigation water to support agricultural use does not exist in the area.

California Porter-Cologne Water Quality Control Act of 1972; California Water Code, Sections 13260 - 13269; 23 CCR Chapter 9. The Water Code requires protection of water quality by appropriate design, sizing, and construction of erosion and sediment controls. The discharge of "waste" soil into surface waters resulting from land disturbance may require the filing of a report of waste discharge (see Water Code Section 13260a).

South Star I and II will not discharge waste soils during grading and construction. Mitigative measures SOIL-3 and SOIL-4, to be implemented during grading and construction, will protect all surface water courses.

Williamson Act. Neither South Star I or II will affect land under Williamson Act contracts.

Kern County General Plan -- Conservation Element, 1988. The conservation element of the County's General Plan sets forth policies that address protection of soil and vegetation.

Neither South Star I or II will significantly reduce the quality of existing agricultural resources or significantly reduce access to soil or agricultural resources.

Approximately 6.3 acres of soil area under each plant site will be placed into industrial use;

however, the area is surrounded by existing oilfield operations, lacks a source of irrigation water, and is not considered a viable agricultural resource. The intent and purpose of the South Star Project is in compliance with the Kern County General Plan.

Kern County Hydrology Manual. This manual is a guideline for designing the drainage system for construction projects. The Kern County Water District monitors compliance.

South Star I and II will be in compliance with the guidelines in the manual, as discussed in Section 8.14, Water Resources.

Kern County Code of Building Regulation Grading Ordinance, Chapter 17.28. Construction project attainment of grading requirements is described in this ordinance. The Kern County Building Department administers the ordinance.

South Star I and II will be in compliance with the grading requirements of the ordinance.

8.9.5 Involved Agencies and Agency Contacts

The following are the agencies involved with farmland and the erosion of soils:

Agency	Contact/Title	Telephone
Natural Resource Conservation Service Bakersfield Office 1601 New Stine Road, Suite 270 Bakersfield, CA 93309	Ed Russell/ Soil Scientist	(661) 861-4125x6
Kern County Building Department 2700 "M" Street Bakersfield, CA 93301	Robert Sawyer/ Principal Building Inspector	(661) 862-5093

8.9.6 Permits Required and Permit Schedule

There are no permits required for South Star I or II that are specific to agriculture and soil resources.

8.9.7 References

- National Resource Conservation Service, 2001. Preliminary soil maps and advance copies of soil type descriptions for the Southwest Kern County Soil Survey, in preparation.
- National Resource Conservation Service, 2001b. Preliminary soil maps and advance copies of soil type descriptions for the Carrizo plain area of San Luis Obispo County, in preparation.
- Kern County Zoning Map, 2001. Information obtained from the official Kern County website: http://www.co.kern.ca.us.
- Agricultural Commissioner's office, 2001. Kern County Zoning Map, 2001. Information obtained from the official Kern County website: http://www.co.kern.ca.us.
- Soil Conservation Service, 1983. *National Engineering Handbook*. U.S. Government Printing Office.

Table 8.9-1. Soil Types Identified in the South Star I and II Project Sites by Location

Project Element	Approximate Size/ Location in the Project	Map Symbol ^a	Soil Name ^a
Cogeneration plant South Star I (includes construction laydown)	6.3 acres at South Star I site	471	Pyxo-Cochora-Badlands association
Cogeneration plant South Star II (includes construction laydown)	6.3 acres at South Star II site	470	Pyxo-Cochora association
		471	Pyxo-Cochora-Badlands association
Proposed Natural Gas Line	2.3 miles	193	Guijarral gravelly sandy loam
		550	Welport-Elkhills association
Alternate Route 1 (Natural gas)	2.4 miles	193	Guijarral gravelly sandy loam
		550	Welport-Elkhills association
Alternate Route 2 (Natural gas)	1.5 miles	470	Pyxo-Cochora association
		471	Pyxo-Cochora-Badlands association
		550	Welport-Elkhills association
TCI South Midway Utility Corridor (Natural gas, steam, wastewater and water	Segment A 1.25 miles Segment B 1.4 miles	471	Pyxo-Cochora-Badlands association
lines)		550	XX 1
		550	Welport-Elkhills association
Proposed 115 kV Transmission line	5.3 miles	471	Pyxo-Cochora-Badlands association
Existing 12.47 kV Transmission Line (to be rebuilt for 115 kV)	4.7 miles	470	Pyxo-Cochora association
		471	Pyxo-Cochora-Badlands association
		550	Welport-Elkhills association

^a Map symbols and soil types were obtained from preliminary maps prepared by the Bakersfield office of the National Resource Conservation Service.

Table 8.9-2. Characteristics of Soil Types in South Star I and II Sites

			Erosion Susceptibility			
Map Unit Name and Description ^a	Slopes ^a Percent	Soil Profile	Water	Wind	Comments	
193 – Guijarral gravelly sandy loam: very deep and well drained. Alluvium eroded from weathered shale and sandstone. Developed on alluvial fan terraces.	2 – 9	Gravelly sandy loam: 0 to 60 inches	Slight	Moderate	Excavations for roads or building site pads can expose material that is highly susceptible to wind erosion. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of wind erosion. The risk of corrosion of steel or concrete can be offset with resistant coatings or cathodic protection.	
470 –Pyxo-Cochora association. Pyxo Soils: Moderately deep. Well drained. Low available water capacity. Derived from weakly soft calcareous sandstone or shale.	15-30 North- to east- facing backslopes	0-38 inches: loam; 38-40 inches: weakly consolidated sediment	Severe	Moderate	Excavation for roads or building site pads can expose material that is highly susceptible to wind erosion. Depth to bedrock may make excavations difficult. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of wind and water erosion. When	
Cochora Soils Shallow. Well drained. Very low available water capacity. Derived from fractured shale.	15-30 South- to west-facing backslopes	0-9 inches: loam; 9-15 inches: sandy loam; 15 inches: to weathered bedrock.	Severe	Moderate	possible, avoid loss of the surface layer to prevent a serious decrease in productivity and in the potential of the soil to produce plants suitable for grazing. Diversions shall be build into roads to direct runoff away from roads. The risk of corrosion of steel or concrete can be offset with resistant coatings or cathodic protection.	

Table 8.9-2.	(Continued)
Table 0.9-2.	(Continued)

			Erosion Susceptibility			
Map Unit Name and Description ^a	Slopes ^a Percent	Soil Profile	Water	Wind	Comments	
471 –Pyxo-Cochora-Badlands association.					Excavation for roads or building site pads can expose material that is highly susceptible to	
Pyxo Soils: Moderately deep. Well drained. Low available water capacity. Derived from weakly soft calcareous sandstone or shale	15-30 North- to east- facing backslopes	0-38 inches: loam; 38-40 inches: weakly consolidated sediment	Severe	Moderate	wind erosion. Depth to bedrock may make excavations difficult. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of wind and water erosion. When possible, avoid loss of the surface layer to	
Cochora Soils Shallow. Well drained. Very low available water capacity. Derived from fractured shale.	15-30 South- to west-facing backslopes	0-9 inches: loam; 9-15 inches: sandy loam; 15 inches: to weathered bedrock.	Severe	Moderate	prevent a serious decrease in productivity and in the potential of the soil to produce plants suitable for grazing. Diversions shall be build into roads to direct runoff away from roads. The risk of corrosion of steel or concrete can be	
Badlands soil. Very low available water capacity. Derived from soft sandstone and shale.	50-75 Scarpes on toe slopes	Steep barren land dissected by many intermittent drainage channels.	Severe	Not Reported	offset with resistant coatings or cathodic protectors.	

			Erosion Susceptibility		_
Map Unit Name and Description ^a	Slopes ^a Percent	Soil Profile	Water	Wind	Comments
550 – Welport – Elkhills association:	9 - 30	0 to 9 inches: loam;:	Moderate	Moderate	Shallow depth to hardpan may make excavation
Shallow. Well drained. Very low to moderate available water capacity. Uplifted alluvium derived from shale		9 to 12 inches: sandy loam;	to severe	to severe	difficult on the welport soil. Build diversions into roads to direct runoff away. Excavations for roads or building site pads can expose material
and sandstone. Developed on hills.		12 to 37 inches: lime and silica cemented hardpan;: 37 to 60 inches: gravelly sandy loam			that is highly susceptible to wind erosion. Avoid loss of the surface layer to prevent a serious decrease in productivity and in the potential of the soil to produce plants suitable for grazing. Disturbed areas of construction sites should be revegetated or covered with synthetic matting where needed to reduce the risk of wind erosion. The risk of corrosion of steel or concrete can be offset with resistant coatings or cathodic protection.

^a Map symbols, soil types, and descriptions were obtained from preliminary maps prepared by the Bakersfield (Kern County) and Templeton (San Luis Obispo County) office of the National Resource Conservation Service (NRCS).

Table 8.9-3. Laws, Ordinances, Regulations, and Standards for Agricultural and Soil Resource

Jurisdiction	Authority	Administering Agency	AFC Conformance Section
Federal	Federal Water Pollution Control Act of 1972; Clean Water Act of 1977 (including 1987 amendments)	RWQCB – Central Valley Region under State Water Resources Control Board	8.9.3, 8.9.4
	Soil Conservation Service (1983), <i>National Engineering Handbook</i> , Sections 2 and 3	Natural Resources Conservation Service	8.9.3, 8.9.4
State	California Public Resources Code § 25523(a); CCR §§ 1752, 1752.5, 2300-2309, and Chapter 2, Subchapter 5, Article 1, Appendix B, Part (i)	CEC	8.9.4
	Guidelines for Implementation of CEQA, Appendix G; 14 CCR § 15000 – 15387.	CEC	8.9.2, 8.9.4
	Porter – Cologne Water Quality Control Act of 1972; Cal. Water Code § 13260- 13269; 23 CCR Chapter 9.	CEC and the Central Valley RWQCB under the State Water Resources Control Board	8.9.4
	Williamson Act	California Dept. of Conservation, Office of Land Conservation	8.9.4
Local	Kern County General Plan – Conservation Element, 1988.	Kern County Planning and Development Services	8.9.3, 8.9.4
	Kern County Hydrology Manual	West Kern Water District	8.9.4
	Kern County Code of Building Regulation Ordinance	Kern County Department of Public Works	8.9.3, 8.9.4
CEC = Califor	rnia Code of Regulations rnia Energy Commission rnia Environmental Quality Act nal Water Quality Control Board		

South Star Cogeneration Project



